Appendix A. More Info on the W2K Environment

A.1 W2K Desktops and Client/Server Networks

In order to access common resources (e.g., printers, the internet, and many software packages), and to send and receive email, you need to have your W2K system connected to a network, rather than running stand-alone. Windows 2000 is designed to use DHCP addressing for desktops and laptops. For PCs running Windows 2000 at Fermilab, a client/server network is set up in which *server* machines (running Windows 2000 Server) run programs that provide services to many connected *client* machines like yours. These programs are called *servers* (there are mail servers, print servers, file servers, and so on), and they wait for and respond to requests from clients. Server-based networks are scalable, meaning that more server machines can be added and the resources can be reorganized as the number of client machines grows.

The Windows software on your local machine is equipped to recognize local resources (those directly attached to the machine in your office) as distinct from network resources (those that must be delivered or accessed via the network), and directs your requests accordingly. In terms of using resources and working with files, you generally don't need to know if an application or document is local or remote as long as you can find it on one of the drives available to you via **MY COMPUTER** or **MY NETWORK PLACES** or the **WINDOWS EXPLORER** (under **START > PROGRAMS > ACCESSORIES**). In practice however, you'll want to know what's on your local drive(s) and what's not, so that you know what you are responsible for managing.

A.2 The W2K Domain Structure and Strong Authentication

The Fermilab W2K domain design enforces strong authentication. It has a central root domain with a few child domains:

- WIN.FNAL.GOV is the top level domain. It is maintained by the domain administrators, who are primarily from the Computing Division. Policies made at this level will affect systems in the child domains. This domain provides site wide control; it forces all systems to use Kerberos or NTLMv2 as the only accepted authentication methods.

- FERMI.WIN.FNAL.GOV is a child domain of WIN.FNAL.GOV. This contains organizational units (OUs) for the divisions, experiments, and so on across the site. It contains the users, desktops, fileservers and printers used by the lab. This is the domain into which users authenticate. We refer to it as the "FERMI domain". Other child domains may be created for control systems and other non-user entities.

A.3 Migration from NT4 to W2K

There are a number of NT4 domains at the lab. The NT4 FNAL domain is the one that has been supported by the Computing Division. NT4 domains do not use or require strong authentication at this time, in contrast to the newer W2K domain. Users and resources across the lab are being transitioned from NT4 to the FERMIW2K domain.

Although a large number of W2K desktops have been migrated to the FERMI domain, there are still Windows desktops on site that belong to an NT4 domain (FNAL or another), as of January 2003. NT4 domain desktops have access to their NT4 domain resources only. In order to accommodate users of the out-going NT4 FNAL domain, the bulk of Windows resources currently remain in the FNAL NT4 domain, where they are accessible by both FNAL and FERMI domain members.

Once most desktops are migrated, resources will be moved to or recreated in the FERMI domain. At that point, access to these resources by any remaining non-domain desktops will become important. We discuss this topic in Chapter 4: *Authenticating and Accessing Domain Resources from Non-Domain Machines*.

A.4 User Profiles in the FERMI Domain

Under Windows 2000 (as under Windows NT4), a *user profile* is a collection of user-specific settings that define a user's working environment. These settings include such items as the wallpaper, screen resolution, and application settings (e.g., the last few files you were editing in a particular application or a list of Web sites). Profiles vary in size depending upon the complexity of the applications that take advantage of the profile area, how much data a user saves in the profile area, and limitations imposed by the OU. A typical size for a user profile is about 5MB.

The profile can be stored locally for use on a particular machine, in which case it is called a *local* profile. Storing W2K user profiles on local machines in a networked environment is only practical if the users typically each use only one machine. For Fermilab users who often work at different locations within the lab and who travel, W2K accounts are generally configured to use what are

called *roaming* profiles. A roaming profile is stored on the server, and is available to you as you "roam" to other W2K machines, maintaining your same settings everywhere.

A.4.1 Roaming Profiles

When a roaming profile is used, the system downloads your roaming profile to your client machine when you log onto the FERMI domain, and copies it back to the server when you log off. At login, the system checks to see if a local user profile is on the machine, and if so, whether it is more recent than your server-based profile. If a local profile is not there or if it is older, the system downloads your roaming profile from the server onto that machine. If your local one is there and is more recent than your roaming profile (this happens if you shutdown the machine without logging off), the system informs you and asks you which profile you want to use. Usually you'll want to choose the more recent local profile. To reduce network traffic, the system also checks to see if the profile has changed before storing it back on the server.

Never log into a W2K computer and then into an NT4 computer if you have a roaming profile!

An updated roaming profile does not get copied back to the server if you shut down the client machine without logging off.

There are several advantages to using a roaming profile. Most importantly, all the customization you have done with your desktop is available to you wherever you log in. This customized information is stored on a server that gets backed up regularly, so if your machine crashes, you don't need to rebuild your environment.

There are a few things to be aware of regarding roaming profiles:

- Windows 95/98 systems do not support roaming profiles.
- Using your roaming profile over a modem, DSL or other remote connection can cause your login process to hang.
- When using roaming profiles, it is important to store wallpaper, sounds, and any other user-specific data to your home area on your server (see section 5.2 *Storing your Files*). If files are referenced locally and the data is stored on the local machines, those files will not be found when you roam to another computer.
- A roaming profile may get confused if it gets downloaded to a system with an incompatible configuration. For example, if the roaming profile is set up to download particular software, and the software already exists on the machine, things may not work correctly. By the same token, if it expects to find software that is absent, errors can occur.
- Always remember to logoff your machine in order to save your profile back to the server.

A.4.2 Local Profiles

As mentioned in the previous section, local profiles are better when you connect via slow link, since it can take a long time to load a roaming profile. If you log in this way often, we recommend that you use your local profile on the off-site machine. Instructions can be found in the standard W2K help; search on “local user profiles”.

The disadvantage to relying on a local profile is that it is available only on the specific machine where it resides. It cannot be made available to you when you log in from a different machine. If you use only a local profile, you should take care to back it up regularly because this information will be lost if the machine has to be rebuilt. In particular back up your mail address book and your browser favorites to your home area on your server. Backup of data on local machines is the responsibility of the user.